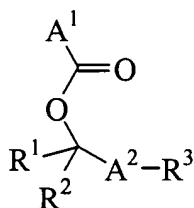


AMENDED SET OF CLAIMS

1. (currently amended) An ester compound having the general formula (1):



(1)

wherein

$A^1$  is a polymerizable functional group having a carbon-to-carbon double bond,

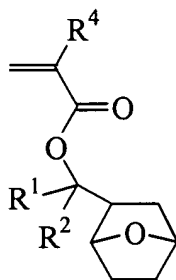
$A^2$  is a divalent group selected from among furandiyl, tetrahydrofurandiyl and oxanorbornandiyl,

~~$R^1$  is a straight, branched or cyclic monovalent hydrocarbon group having 2 to 10 carbon atoms,  $R^2$  is a straight, branched or cyclic monovalent hydrocarbon group having 2 to 10 carbon atoms, or~~

$R^1$  and  $R^2$  may bond together to form an aliphatic hydrocarbon ring with the carbon atom to which they are bonded, and

$R^3$  is hydrogen or a straight, branched, or cyclic monovalent hydrocarbon group having 1 to 10 carbon atoms which may contain a hetero atom.

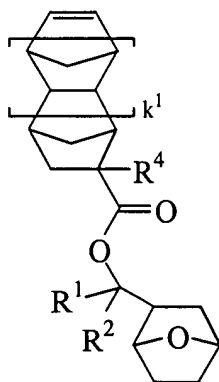
2. (previously presented) An ester compound having the general formula (2):



(2)

wherein  $R^1$  and  $R^2$  are each independently a straight, branched or cyclic monovalent hydrocarbon group having 1 to 10 carbon atoms, or  $R^1$  and  $R^2$  may bond together to form an aliphatic hydrocarbon ring with the carbon atom to which they are bonded, and  $R^4$  is hydrogen or methyl.

3. (currently amended) The ester compound of claim 1 having the general formula (3):



(3)

wherein

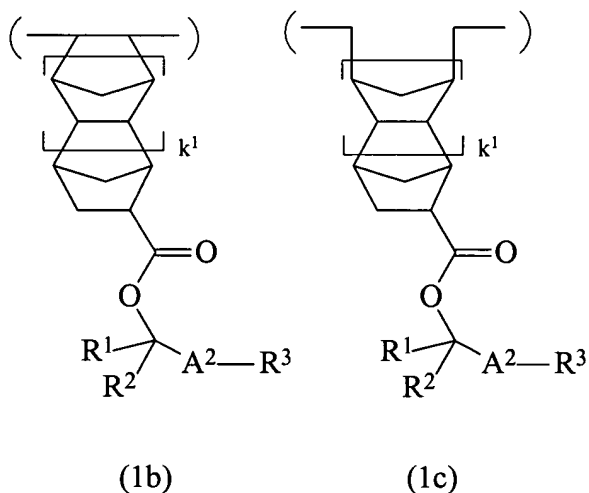
$R^1$  and  $R^2$  ~~are as defined above~~ bond together to form an aliphatic hydrocarbon ring with the carbon atom to which they are bonded,

$R^4$  is hydrogen or methyl, and

$k^1$  is 0 or 1.

4. (original) A polymer comprising recurring units derived from the ester compound of claim 1.

5. (currently amended) A polymer comprising recurring units of any one of the general formulae (1b) and (1c):



wherein

$A^2$  is a divalent group selected from among furandiyl, tetrahydrofurandiyl, and oxanorbornandiyl,

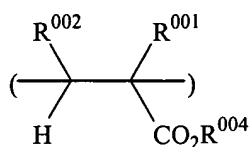
$R^1$  is a straight, branched or cyclic monovalent hydrocarbon group having 2 to 10 carbon atoms,  $R^2$  is a straight, branched or cyclic monovalent hydrocarbon group having 2 to 10 carbon atoms, or

$R^1$  and  $R^2$  may bond together to form an aliphatic hydrocarbon ring with the carbon atom to which they are bonded,

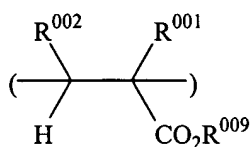
$R^3$  is hydrogen or a straight, branched, or cyclic monovalent hydrocarbon group having 1 to 10 carbon atoms which may contain a hetero atom, and

$k^1$  is 0 or 1.

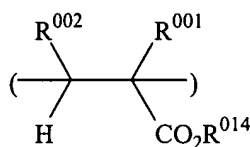
6. (previously presented) The polymer of claim 5, further comprising recurring units of any one of the general formulae (M1) to (M13):



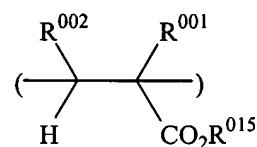
(M1)



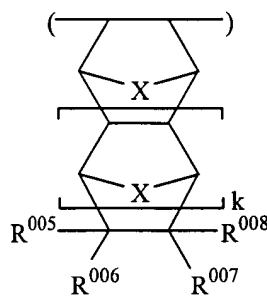
(M2)



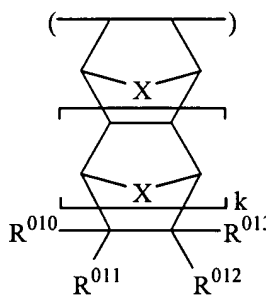
(M3)



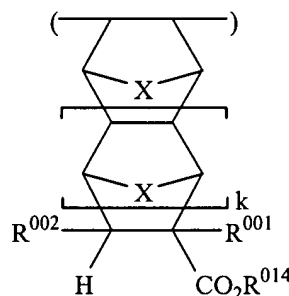
(M4)



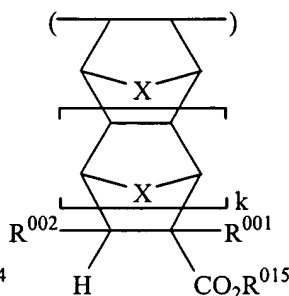
(M5)



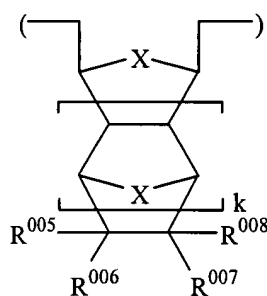
(M6)



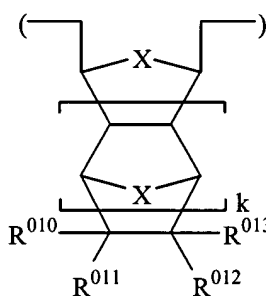
(M7)



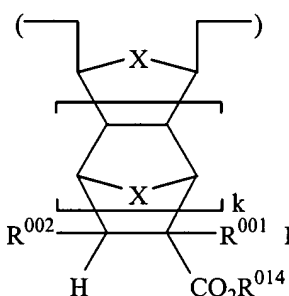
(M8)



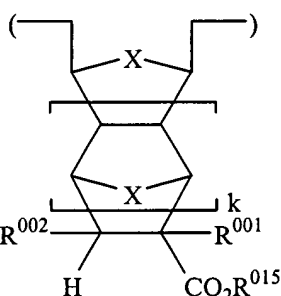
(M9)



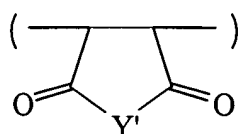
(M10)



(M11)



(M12)



(M13)

wherein  $R^{001}$  is hydrogen, methyl or  $\text{CH}_2\text{CO}_2R^{003}$ ;

$R^{002}$  is hydrogen, methyl or  $\text{CO}_2R^{003}$ ;

$R^{003}$  is a straight, branched or cyclic alkyl group of 1 to 15 carbon atoms;

$R^{004}$  is hydrogen or a monovalent hydrocarbon group of 1 to 15 carbon atoms having a carboxyl or hydroxyl group;

at least one of  $R^{005}$  to  $R^{008}$  represents a monovalent hydrocarbon group of 1 to 15 carbon atoms having a carboxyl or hydroxyl group while the remaining R's independently represent hydrogen or a straight, branched or cyclic alkyl group of 1 to 15 carbon atoms, or  $R^{005}$  to  $R^{008}$ , taken together, may form a ring, and in that event, at least one of  $R^{005}$  to  $R^{008}$  is a divalent hydrocarbon group of 1 to 15 carbon atoms having a carboxyl or hydroxyl group, while the remaining R's are independently single bonds or straight, branched or cyclic alkylene groups of 1 to 15 carbon atoms;

$R^{009}$  is a monovalent hydrocarbon group of 2 to 15 carbon atoms containing at least one partial structure selected from among ether, aldehyde, ketone, ester, carbonate, acid anhydride, amide and imide;

at least one of  $R^{010}$  to  $R^{013}$  is a monovalent hydrocarbon group of 2 to 15 carbon atoms containing at least one partial structure selected from among ether, aldehyde, ketone, ester, carbonate, acid anhydride, amide and imide, while the remaining R's are independently hydrogen or straight, branched or cyclic alkyl groups of 1 to 15 carbon atoms, or  $R^{010}$  to  $R^{013}$ , taken together, may form a ring, and in that event, at least one of  $R^{010}$  to  $R^{013}$  is a divalent hydrocarbon group of 1 to 15 carbon atoms containing at least one partial structure selected from among ether, aldehyde, ketone, ester, carbonate, acid anhydride, amide and imide, while the remaining R's are independently single bonds or straight, branched or cyclic alkylene groups of 1 to 15 carbon atoms;

$R^{014}$  is a polycyclic hydrocarbon group having 7 to 15 carbon atoms or an alkyl group containing a polycyclic hydrocarbon group;

$R^{015}$  is an acid labile group;

X is CH<sub>2</sub> or an oxygen atom or sulfur atom;

Y' is -O- or -(NR<sup>f</sup>)-;

R<sup>f</sup> is hydrogen atom or a straight, branched or cyclic alkyl group of 1 to 15 carbon atoms;

and

letter k is 0 or 1.

7. (previously presented) A resist composition comprising the polymer of claim 5.

8. (original) A process for forming a resist pattern comprising the steps of:

applying the resist composition of claim 7 onto a substrate to form a coating,

heat treating the coating and then exposing it to high-energy radiation or electron beams

through a photomask, and

optionally heat treating the exposed coating and developing it with a developer.

9. (previously presented) A polymer comprising recurring units derived from the ester compound of claim 2.

10. (previously presented) The polymer of claim 9, further comprising recurring units of any one of the general formulae (M1) to (M13):





at least one of  $R^{005}$  to  $R^{008}$  represents a monovalent hydrocarbon group of 1 to 15 carbon atoms having a carboxyl or hydroxyl group while the remaining R's independently represent hydrogen or a straight, branched or cyclic alkyl group of 1 to 15 carbon atoms, or  $R^{005}$  to  $R^{008}$ , taken together, may form a ring, and in that event, at least one of  $R^{005}$  to  $R^{008}$  is a divalent hydrocarbon group of 1 to 15 carbon atoms having a carboxyl or hydroxyl group, while the remaining R's are independently single bonds or straight, branched or cyclic alkylene groups of 1 to 15 carbon atoms;

$R^{009}$  is a monovalent hydrocarbon group of 2 to 15 carbon atoms containing at least one partial structure selected from among ether, aldehyde, ketone, ester, carbonate, acid anhydride, amide and imide;

at least one of  $R^{010}$  to  $R^{013}$  is a monovalent hydrocarbon group of 2 to 15 carbon atoms containing at least one partial structure selected from among ether, aldehyde, ketone, ester, carbonate, acid anhydride, amide and imide, while the remaining R's are independently hydrogen or straight, branched or cyclic alkyl groups of 1 to 15 carbon atoms, or  $R^{010}$  to  $R^{013}$ , taken together, may form a ring, and in that event, at least one of  $R^{010}$  to  $R^{013}$  is a divalent hydrocarbon group of 1 to 15 carbon atoms containing at least one partial structure selected from among ether, aldehyde, ketone, ester, carbonate, acid anhydride, amide and imide, while the remaining R's are independently single bonds or straight, branched or cyclic alkylene groups of 1 to 15 carbon atoms;

$R^{014}$  is a polycyclic hydrocarbon group having 7 to 15 carbon atoms or an alkyl group containing a polycyclic hydrocarbon group;

$R^{015}$  is an acid labile group;

X is CH<sub>2</sub> or an oxygen atom or sulfur atom;

Y' is -O- or -(NR<sup>f</sup>)-;

R<sup>f</sup> is hydrogen atom or a straight, branched or cyclic alkyl group of 1 to 15 carbon atoms;

and

letter k is 0 or 1.

11. (previously presented) A resist composition comprising the polymer of claim 9.

12. (previously presented) A process for forming a resist pattern comprising the steps of:

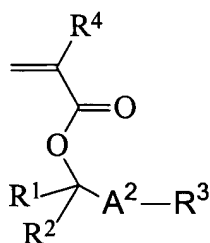
applying the resist composition of claim 11 onto a substrate to form a coating,

heat treating the coating and then exposing it to high-energy radiation or electron beams

through a photomask, and

optionally heat treating the exposed coating and developing it with a developer.

13. (currently amended) An ester compound having the general formula :



wherein

A<sup>2</sup> is a divalent group selected from among furandiyl, tetrahydrofurandiyl and oxanorbornanediyl,

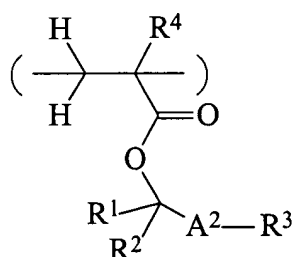
~~R<sup>1</sup> and R<sup>2</sup> are each independently a straight, branched or cyclic monovalent hydrocarbon group having 1 to 10 carbon atoms, or~~

R<sup>1</sup> and R<sup>2</sup> may bond together to form an aliphatic hydrocarbon ring with the carbon atom to which they are bonded,

R<sup>3</sup> is hydrogen or a straight, branched or cyclic monovalent hydrocarbon group having 1 to 10 carbon atoms which may contain a hetero atom, and

R<sup>4</sup> is hydrogen or methyl.

14. (currently amended) A polymer comprising recurring units of the general formula (1a):



(1a)

wherein

A<sup>2</sup> is a divalent group selected from among furandiyl, tetrahydrofurandiyl, and oxanorbornanediyl,

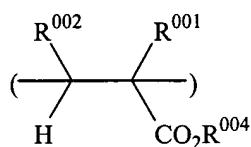
~~R<sup>1</sup> and R<sup>2</sup> are each independently a straight, branched or cyclic monovalent hydrocarbon group having 1 to 10 carbon atoms, or~~

R<sup>1</sup> and R<sup>2</sup> may bond together to form an aliphatic hydrocarbon ring with the carbon atom to which they are bonded,

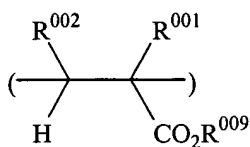
$R^3$  is hydrogen or a straight, branched or cyclic monovalent hydrocarbon group having 1 to 10 carbon atoms which may contain a hetero atom, and

$R^4$  is hydrogen or methyl.

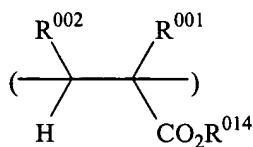
15. (previously presented) The polymer of claim 14, further comprising recurring units of any one of the general formulae (M1) to (M13):



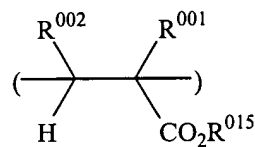
(M1)



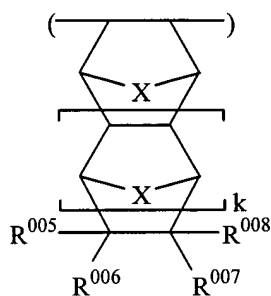
(M2)



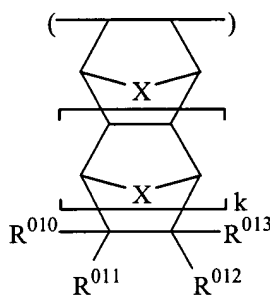
(M3)



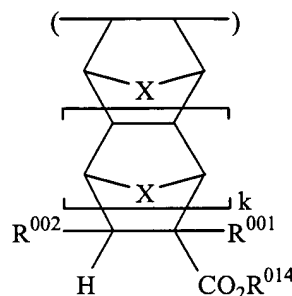
(M4)



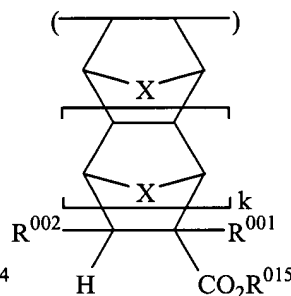
(M5)



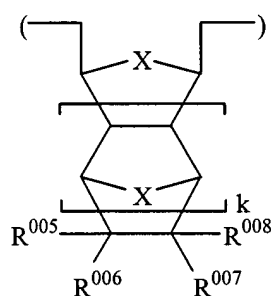
(M6)



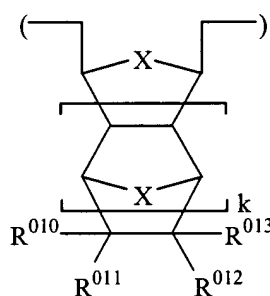
(M7)



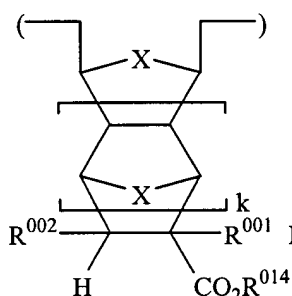
(M8)



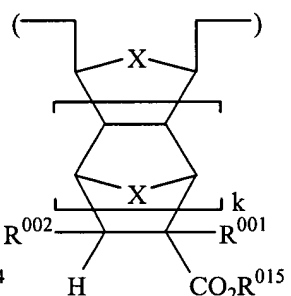
(M9)



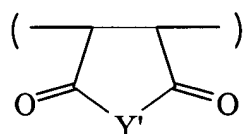
(M10)



(M11)



(M12)



(M13)

wherein  $R^{001}$  is hydrogen, methyl or  $\text{CH}_2\text{CO}_2R^{003}$ ;

$R^{002}$  is hydrogen, methyl or  $\text{CO}_2R^{003}$ ;

$R^{003}$  is a straight, branched or cyclic alkyl group of 1 to 15 carbon atoms;

$R^{004}$  is hydrogen or a monovalent hydrocarbon group of 1 to 15 carbon atoms having a carboxyl or hydroxyl group;

at least one of  $R^{005}$  to  $R^{008}$  represents a monovalent hydrocarbon group of 1 to 15 carbon atoms having a carboxyl or hydroxyl group while the remaining R's independently represent hydrogen or a straight, branched or cyclic alkyl group of 1 to 15 carbon atoms, or  $R^{005}$  to  $R^{008}$ , taken together, may form a ring, and in that event, at least one of  $R^{005}$  to  $R^{008}$  is a divalent hydrocarbon group of 1 to 15 carbon atoms having a carboxyl or hydroxyl group, while the remaining R's are independently single bonds or straight, branched or cyclic alkylene groups of 1 to 15 carbon atoms;

$R^{009}$  is a monovalent hydrocarbon group of 2 to 15 carbon atoms containing at least one partial structure selected from among ether, aldehyde, ketone, ester, carbonate, acid anhydride, amide and imide;

at least one of  $R^{010}$  to  $R^{013}$  is a monovalent hydrocarbon group of 2 to 15 carbon atoms containing at least one partial structure selected from among ether, aldehyde, ketone, ester, carbonate, acid anhydride, amide and imide, while the remaining R's are independently hydrogen or straight, branched or cyclic alkyl groups of 1 to 15 carbon atoms, or  $R^{010}$  to  $R^{013}$ , taken together, may form a ring, and in that event, at least one of  $R^{010}$  to  $R^{013}$  is a divalent hydrocarbon group of 1 to 15 carbon atoms containing at least one partial structure selected from among ether, aldehyde, ketone, ester, carbonate, acid anhydride, amide and imide, while the remaining R's are independently single bonds or straight, branched or cyclic alkylene groups of 1 to 15 carbon atoms;

$R^{014}$  is a polycyclic hydrocarbon group having 7 to 15 carbon atoms or an alkyl group containing a polycyclic hydrocarbon group;

$R^{015}$  is an acid labile group;

X is CH<sub>2</sub> or an oxygen atom or sulfur atom;

Y' is -O- or -(NR<sup>f</sup>)-;

R<sup>f</sup> is hydrogen atom or a straight, branched or cyclic alkyl group of 1 to 15 carbon atoms;

and

letter k is 0 or 1.

16. (previously presented) A resist composition comprising the polymer of claim 14.

17. (previously presented) A process for forming a resist pattern comprising the steps of:

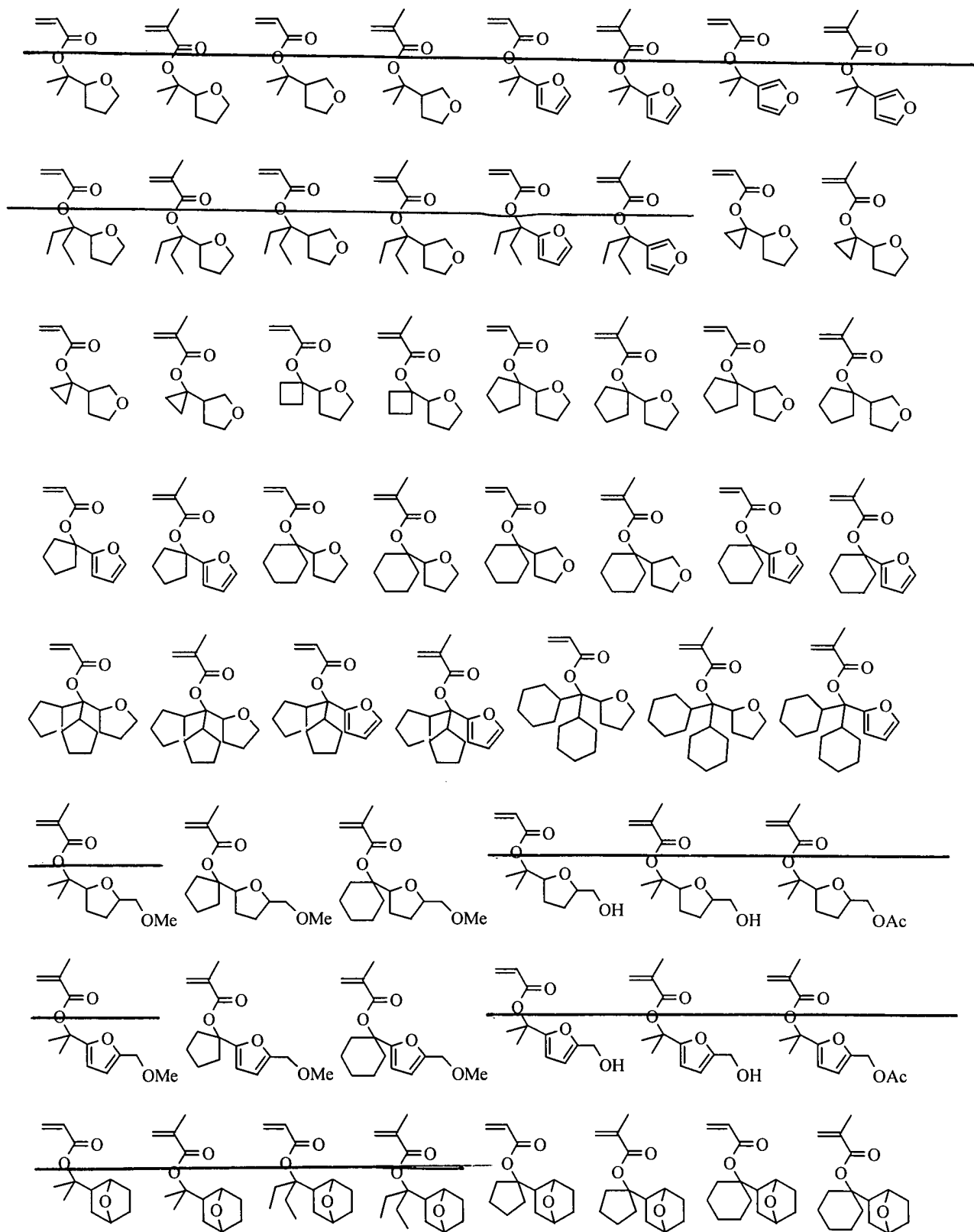
applying the resist composition of claim 16 onto a substrate to form a coating,

heat treating the coating and then exposing it to high-energy radiation or electron beams

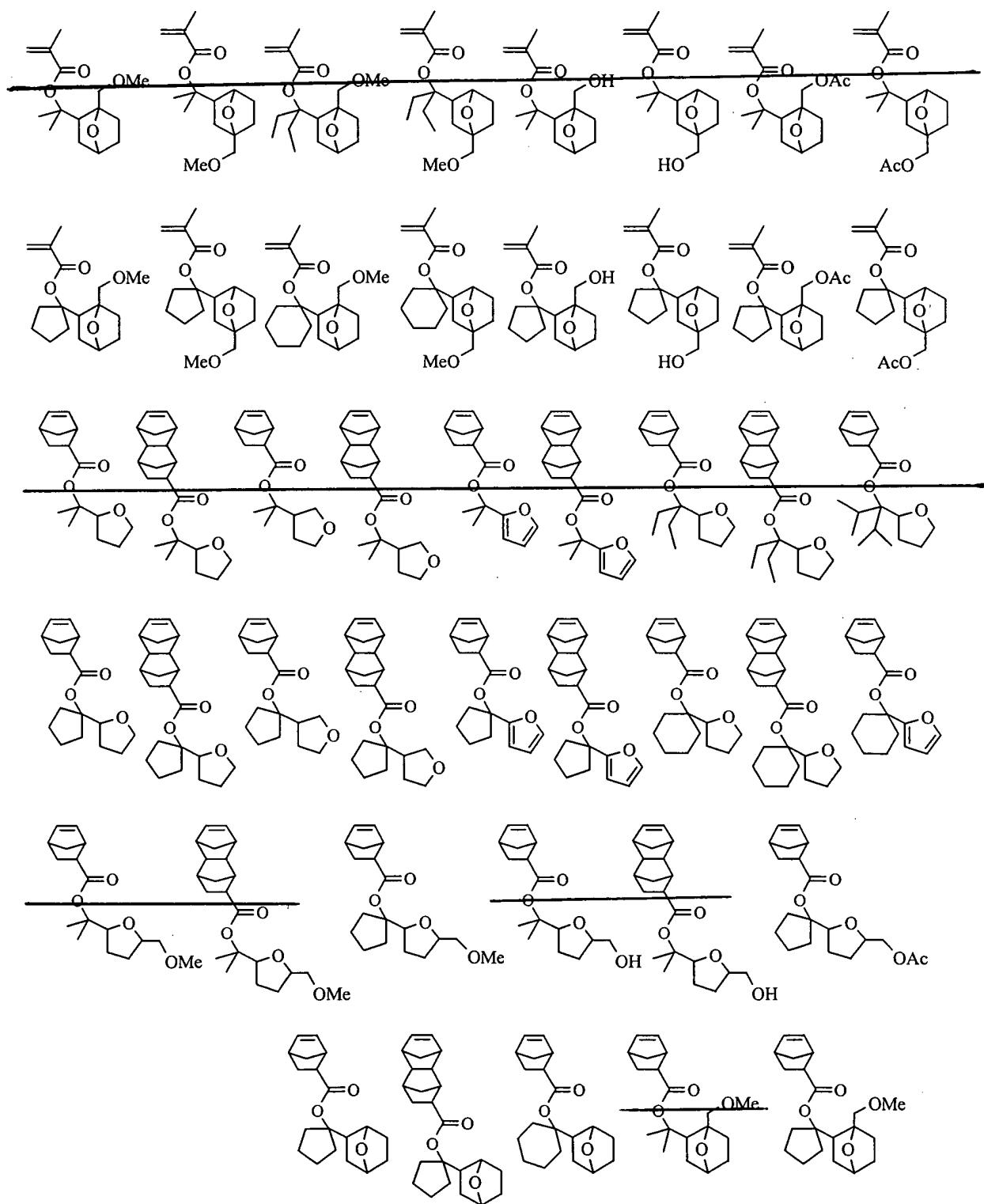
through a photomask, and

optionally heat treating the exposed coating and developing it with a developer.

18. (currently amended) An ester compound selected from the group consisting of compounds having any one of the following formulae:

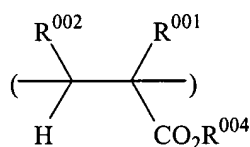




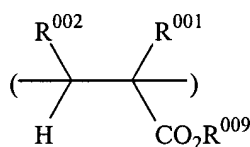


19. (previously presented) A polymer comprising recurring units derived from the ester compound of claim 18.

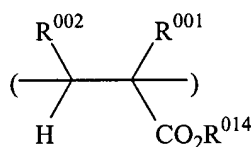
20. (previously presented) The polymer of claim 19, further comprising recurring units of any one of the general formulae (M1) to (M13):



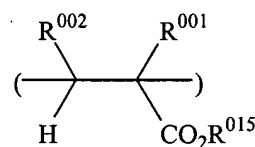
(M1)



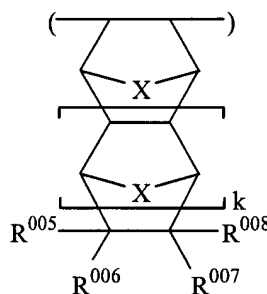
(M2)



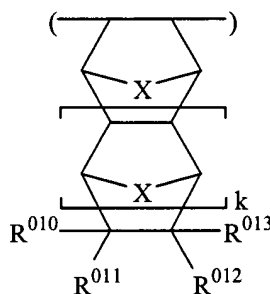
(M3)



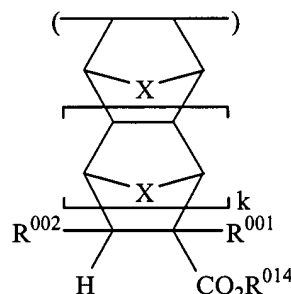
(M4)



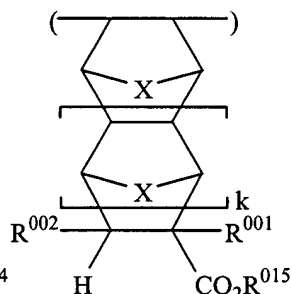
(M5)



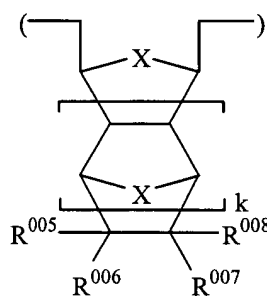
(M6)



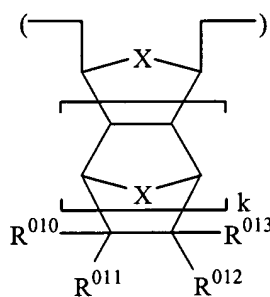
(M7)



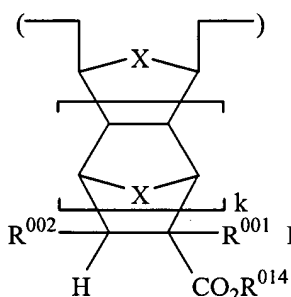
(M8)



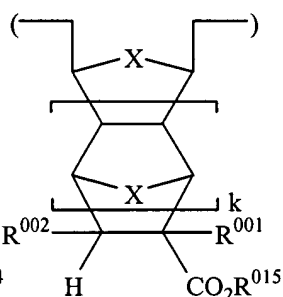
(M9)



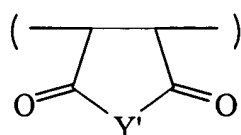
(M10)



(M11)



(M12)



(M13)

wherein  $R^{001}$  is hydrogen, methyl or  $CH_2CO_2R^{003}$ ;

$R^{002}$  is hydrogen, methyl or  $CO_2R^{003}$ ;

$R^{003}$  is a straight, branched or cyclic alkyl group of 1 to 15 carbon atoms;

$R^{004}$  is hydrogen or a monovalent hydrocarbon group of 1 to 15 carbon atoms having a carboxyl or hydroxyl group;

at least one of  $R^{005}$  to  $R^{008}$  represents a monovalent hydrocarbon group of 1 to 15 carbon atoms having a carboxyl or hydroxyl group while the remaining R's independently represent hydrogen or a straight, branched or cyclic alkyl group of 1 to 15 carbon atoms, or  $R^{005}$  to  $R^{008}$ , taken together, may form a ring, and in that event, at least one of  $R^{005}$  to  $R^{008}$  is a divalent hydrocarbon group of 1 to 15 carbon atoms having a carboxyl or hydroxyl group, while the remaining R's are independently single bonds or straight, branched or cyclic alkylene groups of 1 to 15 carbon atoms;

$R^{009}$  is a monovalent hydrocarbon group of 2 to 15 carbon atoms containing at least one partial structure selected from among ether, aldehyde, ketone, ester, carbonate, acid anhydride, amide and imide;

at least one of  $R^{010}$  to  $R^{013}$  is a monovalent hydrocarbon group of 2 to 15 carbon atoms containing at least one partial structure selected from among ether, aldehyde, ketone, ester, carbonate, acid anhydride, amide and imide, while the remaining R's are independently hydrogen or straight, branched or cyclic alkyl groups of 1 to 15 carbon atoms, or  $R^{010}$  to  $R^{013}$ , taken together, may form a ring, and in that event, at least one of  $R^{010}$  to  $R^{013}$  is a divalent hydrocarbon group of 1 to 15 carbon atoms containing at least one partial structure selected from among ether, aldehyde, ketone, ester, carbonate, acid anhydride, amide and imide, while the remaining R's are

independently single bonds or straight, branched or cyclic alkylene groups of 1 to 15 carbon atoms;

$R^{014}$  is a polycyclic hydrocarbon group having 7 to 15 carbon atoms or an alkyl group containing a polycyclic hydrocarbon group;

$R^{015}$  is an acid labile group;

X is  $CH_2$  or an oxygen atom or sulfur atom;

Y' is -O- or  $-(NR^f)-$ ;

$R^f$  is hydrogen atom or a straight, branched or cyclic alkyl group of 1 to 15 carbon atoms;

and

letter k is 0 or 1.

21. (previously presented) A resist composition comprising the polymer of claim 20.

22. (previously presented) A process for forming a resist pattern comprising the steps of:  
applying the resist composition of claim 21 onto a substrate to form a coating,  
heat treating the coating and then exposing it to high-energy radiation or electron beams through a photomask, and  
optionally heat treating the exposed coating and developing it with a developer.

23. (previously presented) The ester compound of claim 1, wherein  $R^1$  and  $R^2$  bond together to form an aliphatic hydrocarbon ring with the carbon atom to which they are bonded.

24. (new) The ester compound of claim 1, wherein A<sup>1</sup> is selected from the group consisting of vinyl, allyl, 1-propenyl, isopropenyl, and tetracyclo[4.4.0.1<sup>2,5</sup>.1<sup>7,10</sup>]dodecyl.
25. (new) A polymer comprising recurring units derived from the ester compound of claim 24.
26. (new) A resist composition comprising the polymer of claim 25.